Dietary fibre modification with or without antibiotics in the prevention of diverticulitis in adults with diverticular disease: A systematic literature review and mata-analysis

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Diverticular Disease

A review of the role of dietary fibre in disease prevention

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Introduction

Despite the belief that dietary fibre prevents diverticulosis and diverticulitis (diverticular disease), little evidence exists examining this relationship.

Therefore, there are no evidence-based dietary management guidelines for the prevention of diverticulosis and progression to acute diverticulitis.

Research Question

A systematic review of the literature was undertaken to synthesise and critically appraise existing evidence on the efficacy of dietary fibre modifications, with or without probiotics or antibiotics, on the development of diverticulosis or acute diverticulitis and associated gastrointestinal symptoms, bowel habits, health care use, complications and patient quality of life.

Methods & Included Studies

- Intervention and observational studies were searched for using five electronic databases from database inception up until 31st March 2017.
- Study quality was assessed using the Cochrane risk of bias tool. Data was pooled via meta-analysis. The quality of the body of evidence was assessed via GRADE.
- 20 studies were included, nine of which were included in six meta-analyses. There was moderate to high risk of bias across most studies.

Results

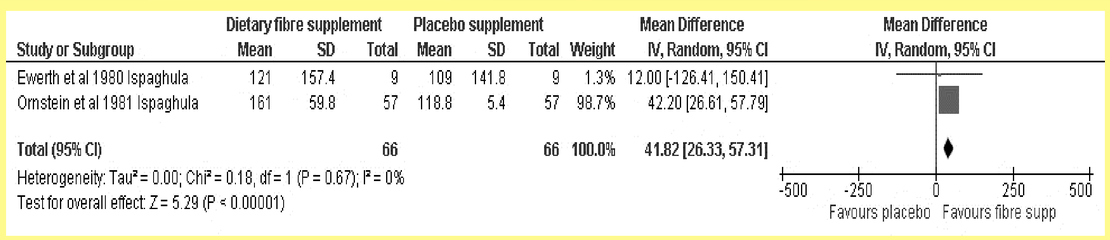

Figure 1: In patients with diverticular disease, two to four months of ispaghula husk supplementation significantly increases daily stool weight compared with placebo by a mean of 42g/day (95%CI: 26-57g; P<0.00001).

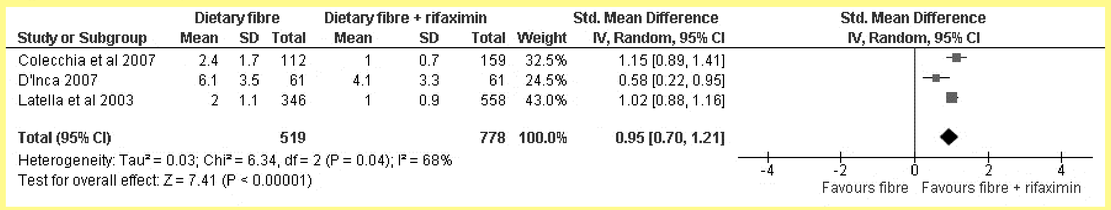

Figure 2: In patients with diverticular disease, 7 days every month for 12-24-months, or 14 consecutive days, of dietary fibre + rifaximin co-administration significantly decreases gastrointestinal symptoms compared with dietary fibre supplementation alone by a standardised mean of 1 point (scale of 0 to approximately 18) (95%CI: 0.70-1.21; P<0.00001).

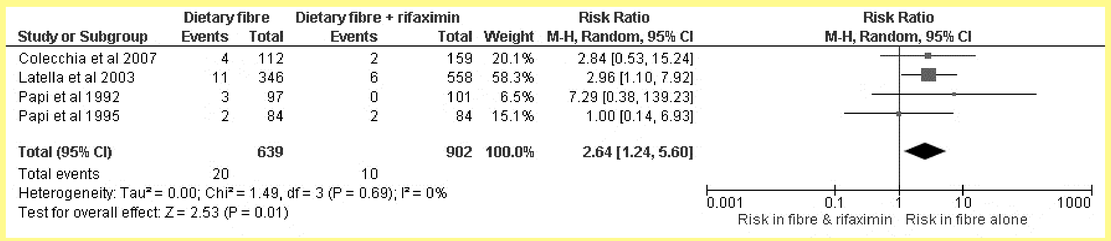

Figure 3: In patients with diverticular disease, 7 days to everyday per month for 12-24-months of dietary fibre supplementation has a 2.6 (95%CI: 1.24-5.6) higher relative risk of acute diverticulitis compared to dietary fibre and rifaximin co-administration (P=0.01).

In patients with diverticular disease, meta-analysis found no significant effect of dietary fibre supplementation on gastrointestinal symptoms (SMD: -0.13; P=0.16) or transit time (MD: -3.70, P=0.32).

In patients with diverticular disease, meta-analysis found no significant effect of dietary fibre + rifaximin co-administration versus dietary fibre supplementation alone on colonic haemorrhaging (RR: 0.7; P=0.75).

The was “very low” confidence in the body of evidence for the preventative effect of high dietary fibre intake on preventing diverticulosis and/or diverticulitis in healthy populations.

There was “low” confidence that high dietary fibre intake prevents diverticulitis occurrence and improves gastrointestinal symptoms as well as bowel habits in populations with diverticulosis.

There was “very low” confidence that symbiotic supplementation benefits gastrointestinal symptoms in populations with diverticular disease.

There was “very low” confidence that dietary fibre co-administered with the antibiotic, rifaximin, reduces the risk of diverticulitis, gastrointestinal symptoms and colonic haemorrhaging in populations with diverticular disease.

Conclusions

The possible benefits of high dietary fibre intake are likely to outweigh potential harms. Therefore, a high dietary fibre intake in accordance with national gender- and age-specific dietary fibre intake guidelines, is recommended for healthy populations and for those with diverticulosis to prevent primary occurrence of diverticulosis and/or diverticulitis.

Ispaghula husk supplementation should be considered on an individualised basis to improve bowel function in those with diverticulosis.

Randomised controlled trials with standardised dietary fibre interventions are warranted to form stronger recommendations and dietary management guidelines.

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